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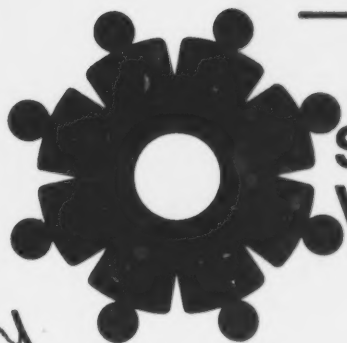
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ABSTRACT

Responding to surveys by the State Council on Vocational Technical Education, Minnesota's technical institutes identified 1,169 of their students who graduated during the 10-year period prior to 1984 and who subsequently established or purchased business enterprises. The collection and analysis of these data represented key steps by the Council, in cooperation with the State Board of Vocational Technical Education and technical institutes, to establish a database on entrepreneurial graduates of postsecondary vocational technical education in Minnesota. Data compiled thus far revealed significant findings regarding the relationship of vocational technical education to entrepreneurial initiatives. The 730 entrepreneurial graduates who hired one or more employees averaged 5.3 employees. No employees were hired by 407 graduates. Sixty-three percent established rather than purchased their businesses. Approximately two-thirds of the enterprises established or purchased were within 50 miles of the entrepreneur's technical institute. They engaged in a broad range of enterprises. Ninety-eight percent were in businesses related to their vocational programs. Five of the 12 vocational program groups in the technical institutes accounted for 82 percent of all the graduates, with the industrial trades accounting for 56 percent. (YLB)

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State Council on Vocational Technical Education

STATE OF MINNESOTA

ED297172

Entrepreneurial Graduates of Minnesota's Technical Institutes

May 1987

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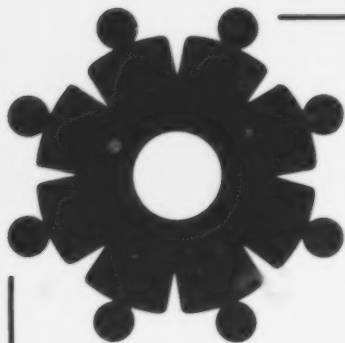
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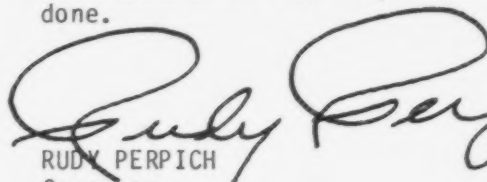
Preface

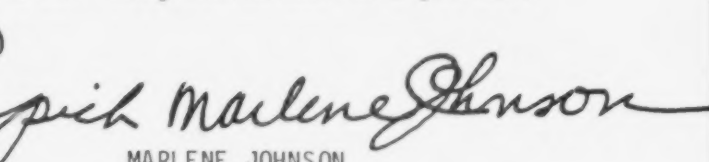
One of Minnesota's greatest strengths is our entrepreneurial spirit. Our state's history is full of examples of creative individuals who have taken control of their own destinies by starting their own businesses. Entrepreneurship is one of the best ways to create new jobs.

The State Council on Vocational Technical Education is to be commended for this report. It provides solid evidence that entrepreneurs come from a variety of backgrounds, and that the skills learned through vocational education can be applied to a vast range of new business opportunities. In addition, the report demonstrates that graduates of vocational technical education programs are responsible for providing jobs for thousands of Minnesotans.

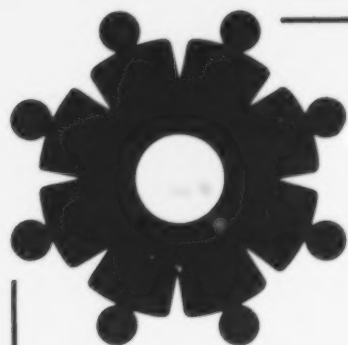
Our challenge is to use the information in this report to encourage entrepreneurship as a viable option for all students in vocational education. We also need to provide the necessary support, both before and after graduation, to increase the success rate for those starting new businesses.

We look forward to receiving further updates as the Council continues its research in this important area. Congratulations on a job well done.


RUDY PERPICH
Governor


MARLENE JOHNSON
Lieutenant Governor

St. Paul, Minnesota
18 May 1987



Acknowledgements

The State Council on Vocational Technical Education expresses its appreciation to the State Board of Vocational Technical Education and Minnesota's technical institutes for their cooperation and assistance during the initial stages of development of a data base on entrepreneurial graduates of postsecondary vocational programs.

The data base is a potentially important source of information in addressing questions about the relationship of education to economic development and specifically of vocational technical education to entrepreneurship.

The Council looks forward to continuing cooperative efforts with the Board and the technical institutes to expand and refine the data base as it seeks to answer the questions posed at the onset of this venture: Are there entrepreneurial graduates of vocational technical education in Minnesota? If so, who are they? What have they achieved? What obstacles have they faced? What can be learned from their experiences to make entrepreneurship an option for more students throughout Minnesota?

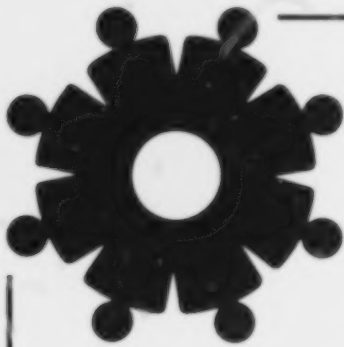
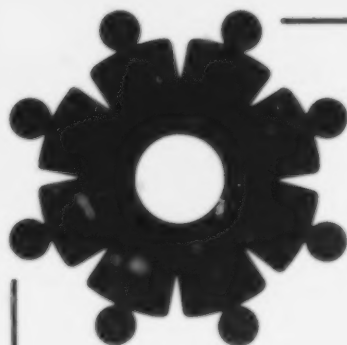


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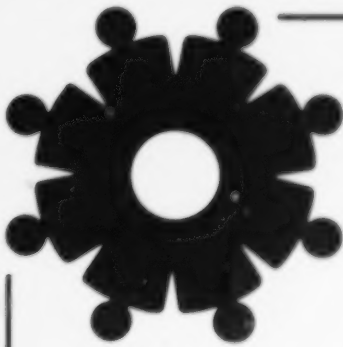
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Executive Summary

Entrepreneurial graduates of Minnesota's technical institutes contribute directly to business formation and job creation in all major sectors of the economy except mining and are part of the economic development of every region of the state. These findings provide substantial evidence that vocational technical education has a significant relationship to entrepreneurial initiatives in Minnesota. Moreover, it is a relationship of potentially great importance for both the short and long term. The importance of the relationship should be addressed in public policy for education and economic development as well as in the marketing and delivery of educational services in the technical institutes. To view regular full-time students in the technical institutes solely as potential employees and never as potential employers simply does not reflect reality.

Both the business creator and the business manager are essential to economic development. The educational needs of both must be addressed. While most students who attend Minnesota's postsecondary institutions--whether a technical institute, a community college, a state university, the University of Minnesota, a private college, or a proprietary school--go to work for someone else, too little consideration may be given to the fact that potential entrepreneurs are among these students, especially those enrolled in

Minnesota's technical institutes and possessing the creative potential to establish new enterprises. The findings presented in this report suggest that the State Board of Vocational Technical Education and the technical institutes should be most deliberate in addressing the creative potential among their students to establish new enterprises. Concurrently, the Board and the technical institutes are encouraged to continue their assertive targeting of managerially-talented students through established management education programs.

To serve students with the talent to create and manage enterprises does not detract from the important role of the technical institutes to offer initial and continuing education to enhance the competencies and productivity of Minnesota's work force. Indeed, the state's economic well-being requires that the technical institutes continue, as they have for 40 years, to provide students with solid educational opportunities and businesses with skilled workers. To address concurrently the entrepreneurial potential can only serve to strengthen further the technical institutes as economic development centers.

Responding to surveys by the State Council on Vocational Technical Education, Minnesota's technical institutes identified 1,169 of their students who graduated during the ten-year period prior to 1984 and who subsequently established or purchased business enterprises. The collection and analysis of these data represent key steps by the Council, in cooperation with the Board and technical institutes, to establish a data base on entrepreneurial graduates of postsecondary vocational technical education in Minnesota. The data base is seen as an important source of information in addressing the relation-

ship of education to economic development and specifically of vocational technical education to entrepreneurship. The initiative for the development of the data base reflects current economic development priorities as well as the Council's statutory obligations, including its responsibility to advise (a) on policies to strengthen vocational technical education and (b) on private sector initiatives and participation at the state and local levels to address emerging curricular and instructional needs.

The data compiled thus far reveals significant findings regarding the relationship of vocational technical education to entrepreneurial initiatives:

- * The 730 entrepreneurial graduates who hired one or more employees averaged 5.3 employees each for a total of 3,891. The number of employees ranged from one to 350.
- * A total of 407 entrepreneurial graduates hired no employees.
- * Together the 1,169 entrepreneurial graduates and the 3,891 employees represented 5,060 jobs.
- * Overall, 63 percent of the entrepreneurial graduates established rather than purchased their businesses.
- * A total of 978 or 84 percent of the entrepreneurial graduates were located in Minnesota.
- * Approximately two-thirds of the enterprises established or purchased by entrepreneurial graduates were located within 50 miles of the entrepreneur's technical institute.

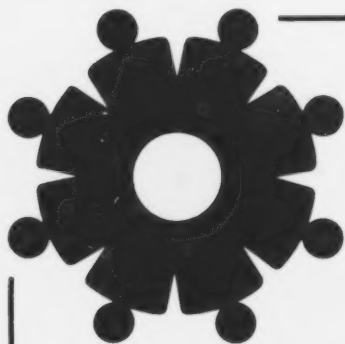
- * The entrepreneurial graduates were engaged in a broad range of enterprises. Their businesses were distributed among all of the nine standard industrial classification (SIC) codes except mining.
- * Entrepreneurial graduates of the 27 campuses in Greater Minnesota appear more likely to come from the program groups in agriculture and transportation-mechanical than their counterparts of the seven campuses in the Twin Cities area who tend instead to come from the program groups in health, marketing-management-sales, and technical-manufacturing.
- * Twin Cities area entrepreneurial graduates appear more likely to operate retail businesses, employ a greater number of workers, locate their businesses in greater proximity to their technical institutes, and to be women.
- * Collectively, 98 percent of the entrepreneurial graduates were in businesses related to their vocational programs.
- * Five of the 12 vocational program groups in the technical institutes account for 82 percent of all the entrepreneurial graduates, with the industrial trades accounting for 56 percent.
- * Entrepreneurial graduates in the industrial trades appear more likely to have no or fewer employees than entrepreneurial graduates of other program groups.
- * While the program groups in health, marketing-management-sales, and media-communications appear to produce fewer entrepreneurial graduates, each of their enterprises tend to employ more workers than the entrepreneurial graduates in the industrial trades.

- * The marketing-management-sales program group accounted for 33 percent of the women entrepreneurial graduates, while the personal services program group accounted for another 31 percent.
- * Women entrepreneurial graduates as a whole appear to establish rather than purchase their businesses, to operate retail or service-oriented enterprises, and to have more employees than men entrepreneurial graduates.
- * Cosmetology appears to be the postsecondary vocational program that lends itself most readily to entrepreneurial initiatives for women.

While the initial analysis of the data on hand reveals significant findings, more needs to be known, including the elements of educational and other community support that foster the entrepreneurial spirit among the diverse populations, many with special needs, who are served by Minnesota's technical institutes. At this point the data base provides no opportunity to address these and other pertinent questions, including the relationship of secondary vocational education experiences to entrepreneurship and the sequence of other educational, work, and life experiences in the making of the entrepreneur. Information with which to address these and other questions may be useful to the Board and the technical institutes in developing appropriate educational services and the strategies to implement them.

The Council now looks to sources, in addition to teachers, by which to expand and refine the data base, namely new information obtained as a result of augmented institutional research capabilities and continued development of alumni associations and foundations at the technical institutes. Given adequate resources and time, the data base can be enhanced to include a more

comprehensive set of data to study further the questions that the Council posed at the onset of this venture: Are there entrepreneurial graduates of vocational technical education in Minnesota? If so, who are they? What have they achieved? What obstacles have they faced? What can be learned from their experiences to make entrepreneurship an option for more students throughout Minnesota?



I. Introduction

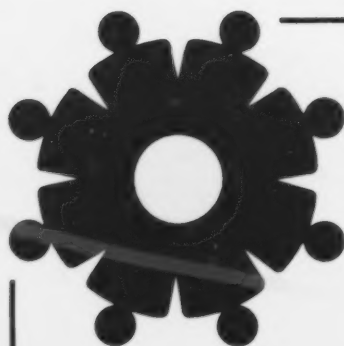
As part of its efforts to address issues regarding education and economic development, the State Council on Vocational Technical Education initiated the development of a data base on entrepreneurial graduates of postsecondary vocational technical education in Minnesota. This report describes the Council's progress in implementing the project, undertaken in cooperation with the State Board of Vocational Technical Education and Minnesota's technical institutes. This report also describes what has been learned thus far about entrepreneurial graduates of the state's postsecondary vocational programs.

Entrepreneurial initiatives are regarded as a central feature of economic development. The most emphasized feature of efforts to generate European economic recovery, entrepreneurial initiatives represent a major renewed priority at the local, state, and national levels in the United States. Evidence of this renewed priority is evident in many state-generated efforts to stimulate economic development. It is also an emphasis of the Carl D. Perkins Vocational Education Act.

There is a growing basis of support for the argument that entrepreneurial initiatives are closely related to the presence of programs in vocational technical education. Indeed, extension vocational programs in farm and small business management are specifically designed to improve management skills,

particularly of persons already engaged in entrepreneurial activities. Moreover, there is emerging thought in the United States that entrepreneurial education ought to be an integral component of vocational technical education at all levels.

Against this background of social, economic, and educational concerns, the Council was confronted with questions for which there were few if any immediate answers: Are there entrepreneurial graduates of vocational technical education in Minnesota? If so, who are they? What have they achieved? What obstacles have they faced? What can be learned from their experiences to make entrepreneurship an option for more students throughout Minnesota?



II. Project Design

The State Board of Vocational Technical Education and Minnesota's technical institutes endorsed the project to develop the data base and agreed to lend assistance. The Council developed and piloted a survey instrument to identify entrepreneurial graduates. The pilot instrument was a one-page form requesting (a) the graduate's name, vocational program, and year of graduation and (b) the name, location, and nature of the enterprise and number of employees. All of Minnesota's technical institutes were asked to participate in the pilot survey. Each campus was asked to identify ten of its entrepreneurial graduates and to complete a survey form for each graduate. Five of the 34 campuses elected not to participate in the pilot survey. The 29 responding campuses returned 774 completed forms.

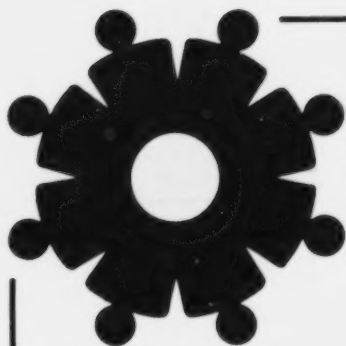
Subsequent to the pilot, the survey instrument and accompanying instructions were revised for clarity. All of the variables used in the pilot survey instrument were retained. Questions were added to determine (a) whether the graduate established or purchased the business, (b) the proximity of the business location to the graduate's technical institute, and (c) the graduate's membership on an advisory committee at his or her technical institute.

All 34 campuses responded to the second survey in which they were asked to identify as many as possible of their entrepreneurial graduates who completed

continuous programs between 1974 and 1983. This survey was restricted to a ten-year period to give the technical institutes a reasonable time frame in which to conduct their searches. (By 1974, all of the campuses had been established for at least three years with Red Wing and East Grand Forks being established in 1971. Mankato, the first of Minnesota's technical institutes, was established in 1947.)

The process by which the technical institutes collected their data for the survey was left to the discretion of the directors. However, it does appear that the majority of the campuses depended on their teachers to provide the information. In at least one technical institute, the program advisory committees were asked to assist in identifying entrepreneurial graduates.

Together the 34 campuses completed and returned 1,489 forms to the Council. Those forms that identified graduates who did not establish or purchase a business enterprise subsequent to completion of their program were removed from the data base. Most of these graduates were employees in supervisory or managerial positions in businesses in which they had no proprietorship. Also removed from the current analysis were graduates who completed their programs prior to 1974 or subsequent to 1983 and those who were engaged in entrepreneurial activities prior to graduation. Subsequent to this screening of all the forms, approximately ten percent of the remaining forms were randomly selected for verification through direct contact with the graduates.



III. Findings

Overview

Minnesota's technical institutes identified 1,169 students who graduated from their continuous programs during the ten-year period prior to 1984 and who subsequently established or purchased a business enterprise. All 34 campuses identified entrepreneurial graduates of their programs. The number identified ranged from five to 112. (The Appendix summarizes the data for each campus.) The campus average was 34 statewide. The 27 campuses in Greater Minnesota averaged 34 each, while the seven campuses in the Twin Cities Metropolitan area averaged 35 each. See Figure 1.

Figure 1

Distribution of Entrepreneurial Graduates Between
Technical Institutes in Greater Minnesota
and the Twin Cities Area

<u>Location of the Technical Institute</u>	<u>Entrepreneurial Graduates</u>	
	<u>n</u>	<u>%</u>
Greater Minnesota	921	79
Twin Cities Area	<u>248</u>	<u>21</u>
Total	1,169	100

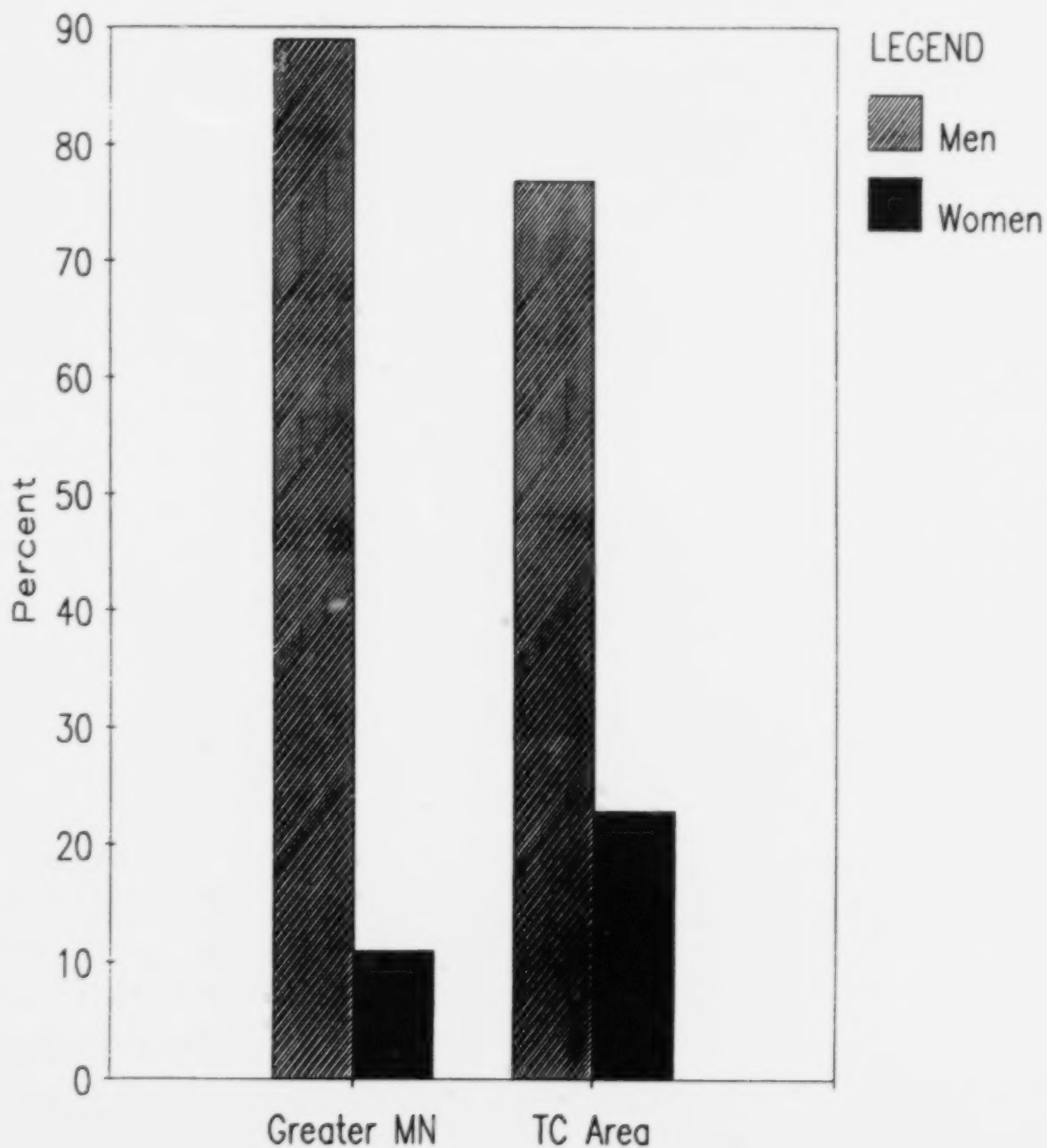
While there was little difference in the average number of entrepreneurial graduates identified by the campuses in the Twin Cities area and those in Greater Minnesota, there were significant differences in the characteristics of their graduates. Twin Cities entrepreneurs tended to come from health, marketing-management-sales, and technical-manufacturing program groups, while Greater Minnesota entrepreneurs were more likely to come from agricultural and transportation-mechanical programs. Twin Cities entrepreneurs appear more likely to operate retail businesses, with 23 percent of them being retail entrepreneurs compared to 11 percent of Greater Minnesota entrepreneurs. Graduates from Twin Cities area campuses also tended to be women, employ a greater number of workers, and to locate their businesses in greater proximity to their technical institutes, as shown in Figures 2 through 4.

Programmatic Backgrounds of Entrepreneurial Graduates

Some program groups and in turn specific programs within the groups appear to lend themselves more readily than others to entrepreneurial initiatives. As is shown in Figure 5, five of the 12 program groups account for 82 percent of the entrepreneurial graduates, with the industrial trades program groups (construction, technical-manufacturing, and transportation-mechanical) accounting for 56 percent.

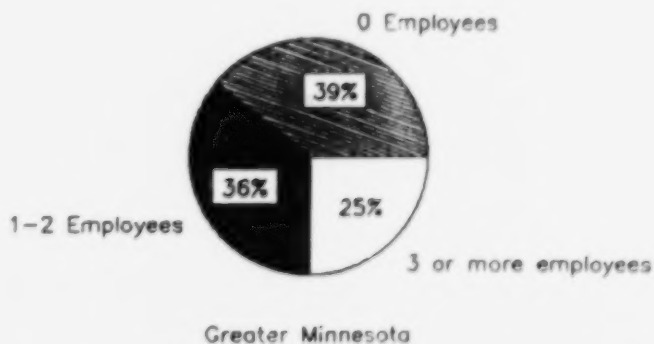
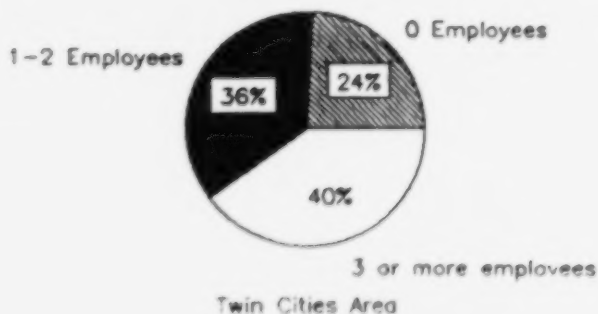
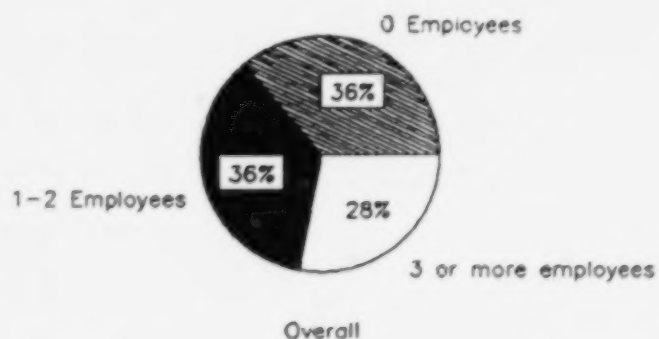
Collectively, 98 percent of the entrepreneurial graduates were engaged in enterprises related to their postsecondary vocational programs. The relationship of program groups to entrepreneurial initiatives is displayed in Figure 6 while the 25 leading specific programs that accounted for 885, or 76 percent, of the 1,169 entrepreneurial graduates are listed in Figure 7.

Figure 2
Comparison of Men and Women Graduates
Twin Cities Area and Greater Minnesota Campuses



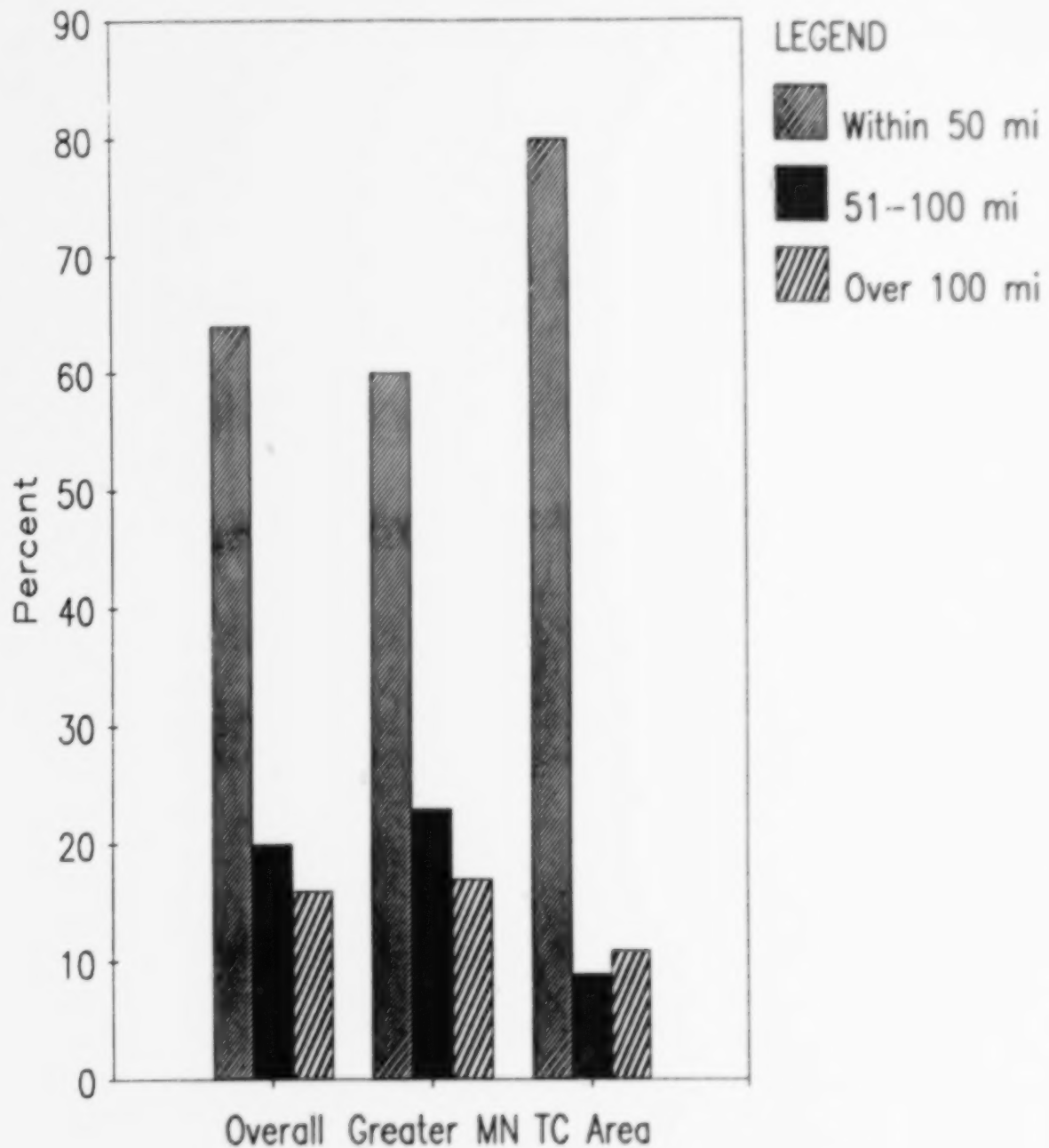
*Graphics courtesy of the State Board of Vocational Technical Education

Figure 3
Distribution of the Number of Employees
of the Twin Cities Area and Greater
Minnesota Entrepreneurial Graduates



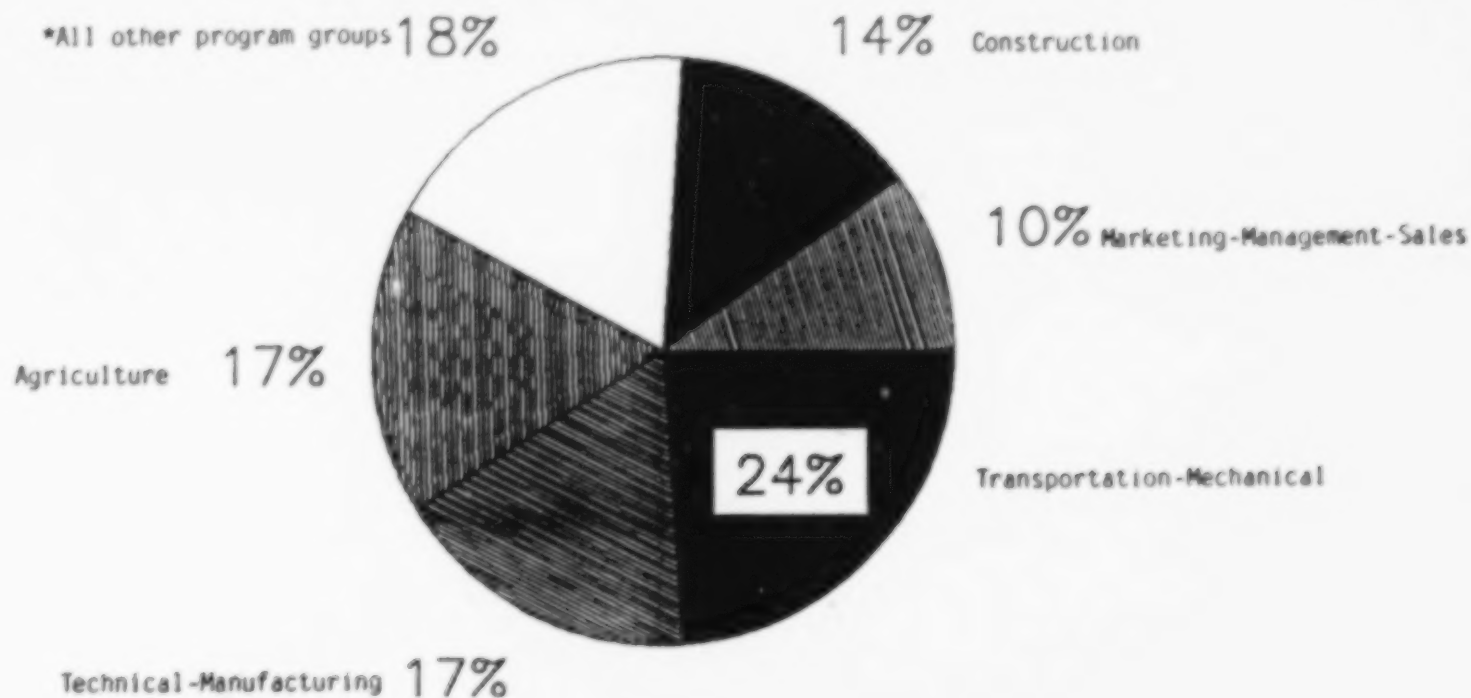
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Figure 4
Proximity of Enterprise to Graduate's
Technical Institute



Graphics courtesy of the State Board of Vocational Technical Education

Figure 5
Distribution of Vocational Program Groups
Among Entrepreneurial Graduates



*All other program groups include: Personal Services, Food Service, Media-Communications, Clerical-Business, Health, Environmental, and Computer Science.

Graphics courtesy of the State Board of Vocational Technical Education

Figure 6

**Graduates Engaged in Enterprises
Related to Their Vocational Program Group**

Program Group	Entrepreneurial Graduates		
	Total Graduates	Number in Related Enterprises	Percent
Trans./Mech.	280	272	97
Agriculture	202	202	100
Tech./Mfg.	199	197	99
Construction	158	153	97
Marketing/ Mgmt/Sales	125	118	94
All other*	205	202	98
Total	1,169	1,144	98

*All other program groups include: Personal Services, Food Service, Media-Communications, Health, Environmental, Clerical-Business, and Computer Science

Graphics courtesy of the State Board of Vocational Technical Education

FIGURE 7.**Twenty-Five Leading Specific Programs of Entrepreneurial Graduates**

<u>Specific Programs</u>	<u>Number</u>	<u>Percent</u>
Farm Operations Management	158	13.5
Diesel Mechanics	79	6.8
Auto Mechanics	76	6.5
Carpentry	63	5.4
Auto Body	49	4.2
Small Business Management	43	3.6
Cosmetology	40	3.5
Appliance/Refrigeration/ Air Conditioning Repair	36	3.1
Electronic Technician	32	2.7
Construction Electrician	27	2.3
Dairy Herd Management	27	2.3
Cook/Chef Training & Mgmt	23	2.0
Clock/Watch Repair	23	2.0
Marketing/Management/Sales	21	1.8
Truck Driving	20	1.7
Gunsmithing	19	1.6
Marine & Small Engines	19	1.6
Welding	18	1.5
Plumbing	17	1.4
Commercial Art	17	1.4
Fashion Merchandising	17	1.4
Electric Motor Technician	16	1.3
Interior Design	15	1.3
Machinist/Tool & Die	15	1.3
Construction	15	1.3
Subtotal	885	76.0
66 Remaining Specific Programs	<u>284</u>	<u>24.0</u>
Total	1169	100

*Graphics courtesy of the State Board of Vocational Technical Education

Entrepreneurial graduates of the technical-manufacturing and transportation-mechanical program groups were heavily represented in service enterprises. In addition to operating building supply and hardware stores, these entrepreneurs provided appliance, automotive, clock and watch, engine, electrical, and wood repair and maintenance services, among others. Approximately 50 percent of the transportation-mechanical entrepreneurs provided automotive services, primarily through their service stations, garages, and auto body shops.

The marketing-management-sales program group produced retailers who owned supermarkets, floral shops, restaurants, and sporting goods and clothing stores. The program group also accounted for a number of design, decorating, consulting, and travel services.

Although entrepreneurial graduates tended to be in service and retail business, there were 29 manufacturers of durable goods. Over half of these manufacturers were involved in the production of machine metal products.

The construction program group was the basis for entrepreneurial initiatives in the construction industry with the relationship of the specific program to the enterprise being direct. For example, all plumbing graduates were in the plumbing business.

The relationship of specific programs within the program groups to the nature of entrepreneurial initiatives of the graduates was related in almost all other instances as well. Plumbing is only one example. All farm operations management graduates were farmers. All cosmetology graduates operated beauty salons or haircutting services. All auto body graduates, except one who owned a service station and car wash, ran auto body shops. All health program

entrepreneurs produced goods and services related to their specific programs, including nursing, prosthetics, and optical and dental laboratory technology.

Also, the data reveal that some speciality programs not available on all campuses appear to lend themselves to entrepreneurial initiatives. Examples include 23 entrepreneurial graduates of the clock and watch repair program at Saint Paul, six entrepreneurial graduates of the music-game repair program at Brainerd, and four entrepreneurial graduates of the travel planner program at Dakota County.

Standard Industrial Classification (SIC) of Entrepreneurial Initiatives

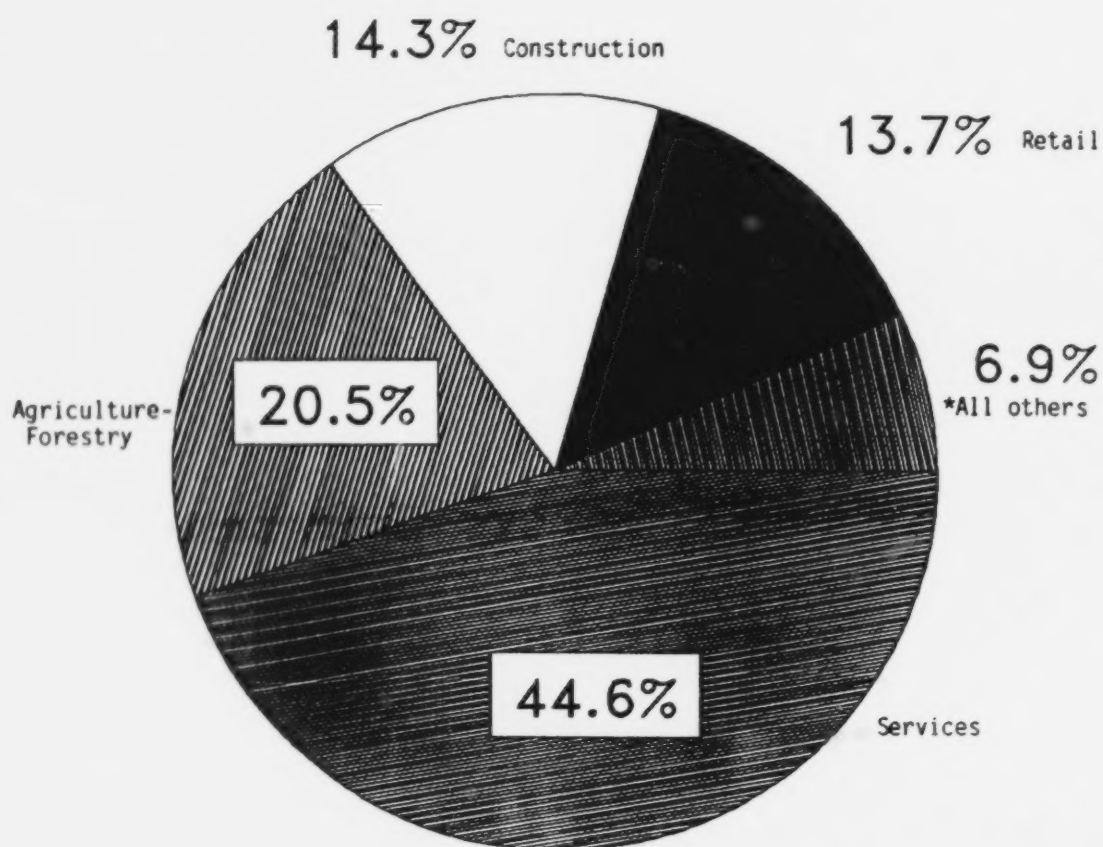
There are nine general standard industrial classifications (SIC).

Entrepreneurial initiatives of the graduates of postsecondary vocational programs fell under all of the categories except one--mining. The SIC codes use a four-digit number to describe the nature of the business. The first two digits are used in this report, with the first digit indicating the general activity and the second digit providing a degree of specificity. Figure 8 shows the distribution among the eight of the nine general classifications, while Figure 9 lists the predominant 12 two-digit classifications into which 1,000, or 85 percent, of the 1,169 entrepreneurial graduates fell.

The use of the SIC codes presented limitations in describing the diversity of entrepreneurial initiatives. There are, for example, 38 different types of activity masked under the first two digits of the SIC codes. Indeed, there are more than 100 different businesses reported under the 38 activity types.

Illustrative is that miscellaneous repair services (the first category listed in Figure 9) aggregates 18 different types of operations, while business ser-

Figure 8
Main Types of Businesses
Engaged in by Entrepreneurial Graduates



*All other business types by SIC code include: Transportation-Communication, Manufacturing, Finance, Insurance, Real Estate, and Wholesale.

Graphics courtesy of the State Board of Vocational Technical Education

FIGURE 9.

Twelve Leading Specific Business Engaged in by Entrepreneurial Graduates

	<u>No.</u>	<u>Percent</u>
<u>Miscellaneous Repair Service</u> - [welding, marine and small engine repair, band and musical string instrument, electrical repair, wood finishing, gunsmithing, airplane services, TV service, appliance, air conditioning, refrigerator, diesel, clock, watch, vending, testing lab]	194	16.6
<u>Agricultural Production Crops</u> - [for all crop farms and farms that were not specifically indicated]	171	14.6
<u>Automotive Repair Services</u> - [towing, garages, auto body]	140	12.0
<u>Construction/Special Trades</u> - [cabinetmaking, carpentry, excavating, masonry, plumbing, electrical contractor, drafting]	116	9.9
<u>Personal Services</u> - [beauty salons, tailoring]	72	6.2
<u>Business Services</u> - [business consulting, designing, lawn maintenance, interior decorating, travel services, sign lettering and design, photography, graphics, picture framing, software services, advertising services, manufacturer's representative (salesperson), painting, waterwell drilling, energy management]	71	6.1
<u>General Construction</u> - [general contractors, builders]	51	4.4
<u>Miscellaneous Retail</u> - [bait shops, florists, sporting goods, jewelry]	44	3.8
<u>Food Stores</u> - [catering, meatcutting, bakeries, food concession, supermarkets, grocers]	37	3.2
<u>Agricultural Production Livestock</u> - [farms that raised meat, poultry, and dairy products]	37	3.2
<u>Freight Transport</u> - [trucking]	36	3.1
<u>Restaurants</u> - [eating and drinking places]	31	2.7
Subtotal:	1,000	85.5
<u>Twenty-six Remain Specific Business</u>	169	14.5
Total:	1,169	100.0

vices (the sixth item listed in Figure 9) represents 15 different types of enterprises. The SIC codes, while useful tools for organizing data, could preclude recognizing the diversity of entrepreneurial activity found among postsecondary vocational program graduates who include a pet care provider, a t^h .dermist, a floor covering installer, a beer wholesaler, a bowling alley operator, an energy management consultant, and two daycare center operators.

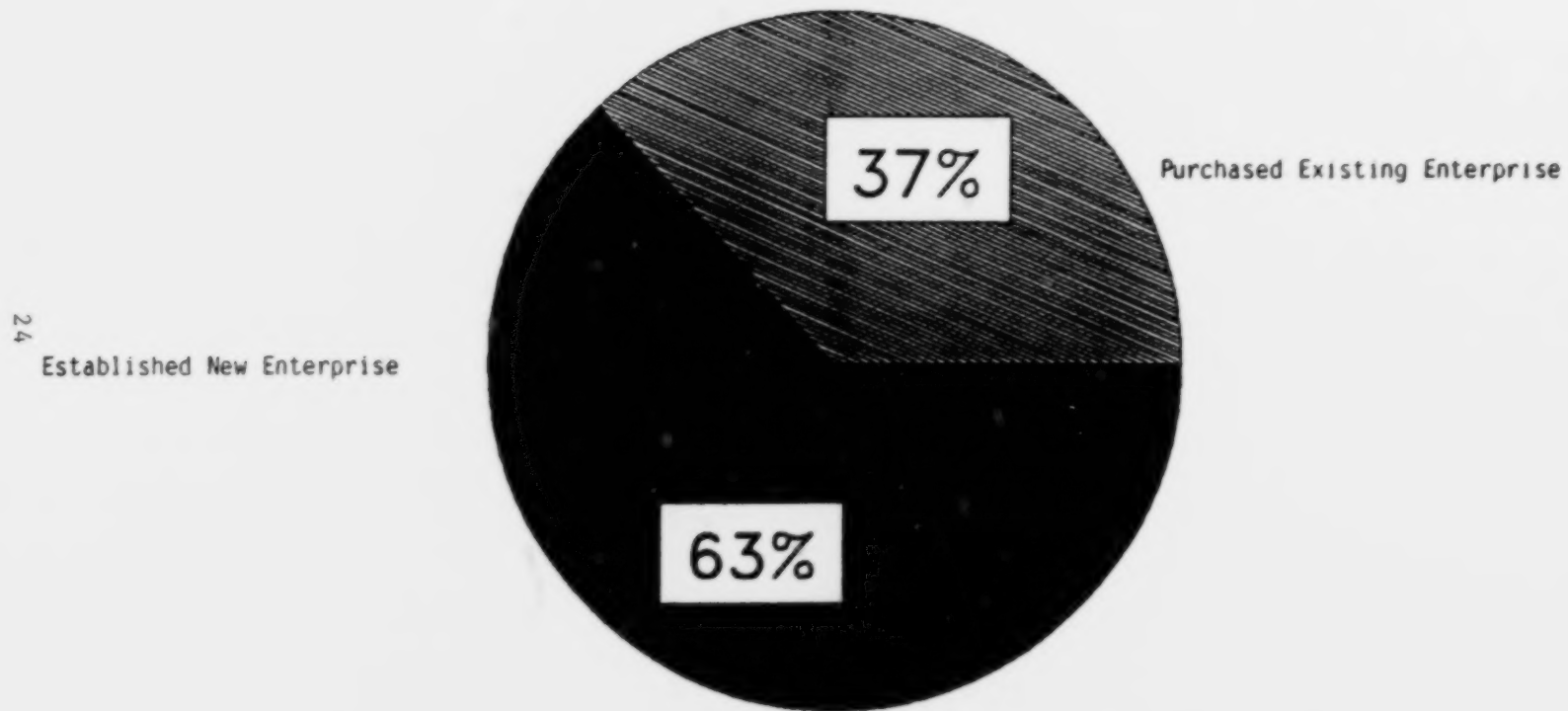
Comparisons of Enterprises Established and Purchased

Overall, 63 percent of the entrepreneurial graduates established new enterprises, while the remaining 37 percent purchased existing businesses, as is shown in Figure 10. If, however, agricultural and retail enterprises are not considered, the percentage of graduates establishing new businesses jumps to 80. The large majority of the entrepreneurial graduates in agriculture purchased farms. Only 10 percent of the agricultural enterprises were newly-established by the entrepreneurs, and all of these were in the area of agricultural services, not farm operations. Retailing was evenly split between graduates establishing and purchasing businesses. The majority of graduates establishing new businesses represented the industrial trades, i.e., the program groups of construction, technical-manufacturing, and transportation-mechanical.

Workers Employed by Entrepreneurial Graduates

A total of 3,891 workers were employed by 1,137 entrepreneurial graduates collectively, averaging 3.4 workers per graduate. (Survey forms for 32 graduates did not give an employee count.) However, 407 or 36 percent of the

Figure 10
Enterprises Established or Purchased by
the Entrepreneurial Graduates



Graphics courtesy of the State Board of Vocational Technical Education

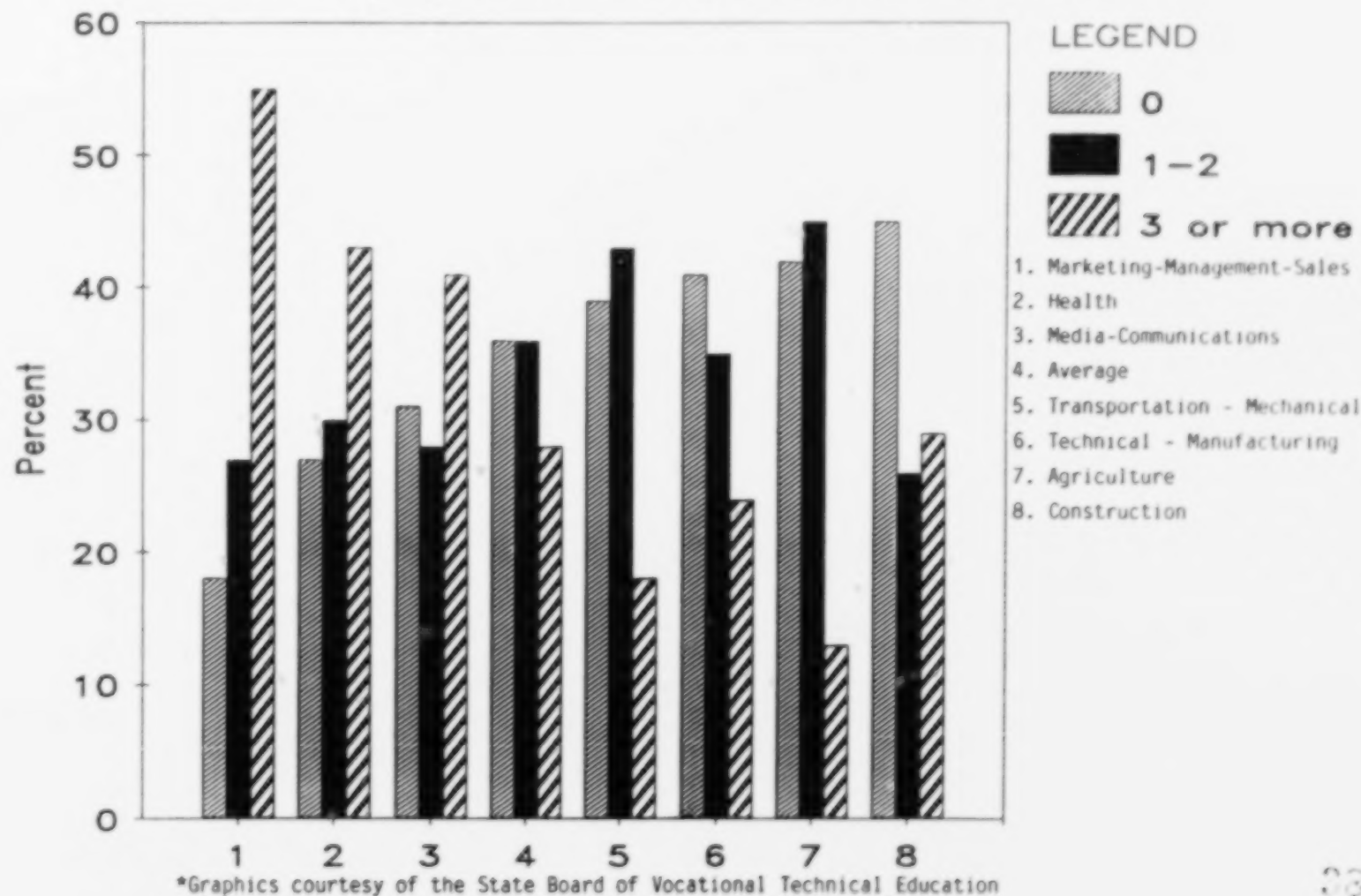
1,137 graduates employed no workers. Considering only the 730 entrepreneurs who hired one or more employees, the average number of workers per employee is 5.3. The number of employees ranged from one to 350 with 27 or three percent of the entrepreneurs employing over 20 workers. The distribution of the number of employees is shown in Figure 2. Of the 730 entrepreneurs who employed one or more workers, 416 established enterprises and averaged 5.1 workers each, compared to the 314 who purchased existing businesses and averaged 5.5 workers each. Altogether, the 1,169 entrepreneurial graduates and the 3,891 employees represented 5,060 jobs.

The graduates' vocational programs appear to contribute to the nature of their entrepreneurial initiatives, which in turn appear to contribute to differences among types of businesses and the number of workers employed. Illustrative of these differences is that agricultural and industrial trades entrepreneurs appear more likely to have no or fewer employees than entrepreneurs coming out of other program groups. See Figure 11. The industrial trades graduates account for a significant number of small construction businesses and repair and maintenance service operations. On the other hand, the program groups in health, marketing-management-sales, and media-communications tend to produce fewer entrepreneurial graduates, but their businesses appear to create more jobs. On the whole, the entrepreneurial graduates who employ a greater number of workers tend to have purchased a business and to be women. The data provided in Figures 12 and 13 suggest the comparisons.

Proximity of the Business Locations to Technical Institutes

Approximately two-thirds of the enterprises established or purchased by entrepreneurial graduates are located within 50 miles of the technical insti-

Figure 11
Comparisons: Vocational Program Groups and the Number
of Employees of Entrepreneurial Graduates



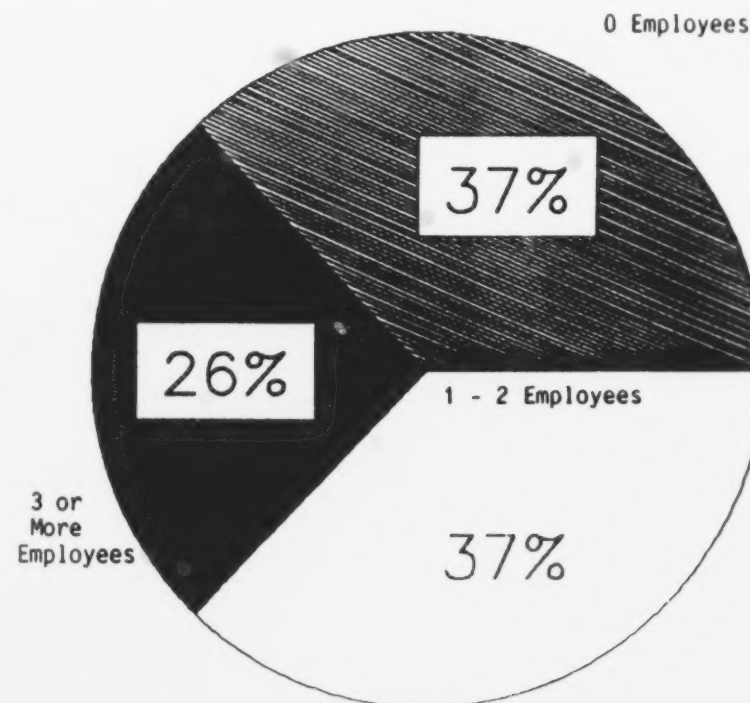
Graphics courtesy of the State Board of Vocational Technical Education

Figure 12
Comparison of the Number of Employees of
Men and Women Entrepreneurial Graduates



39

Women



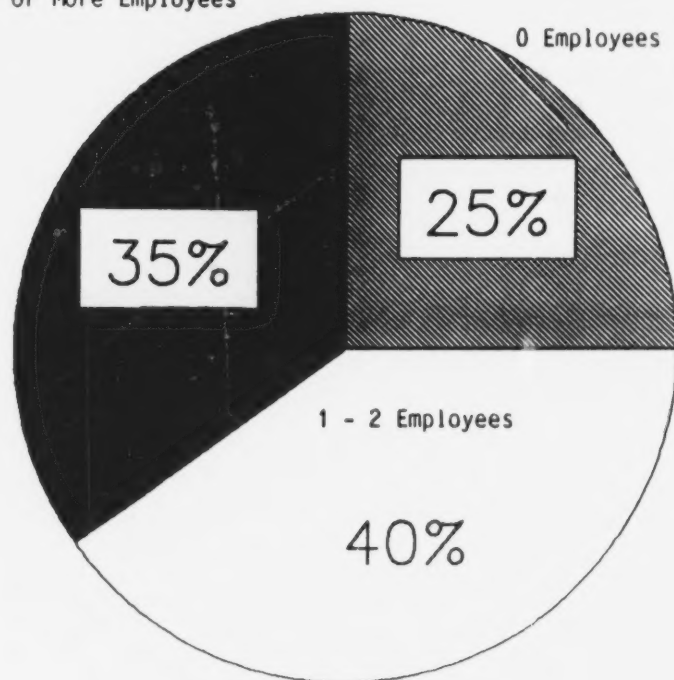
Men

40

Figure 13
Comparison of the Number of Employees of
Graduates Purchasing or Establishing Enterprises

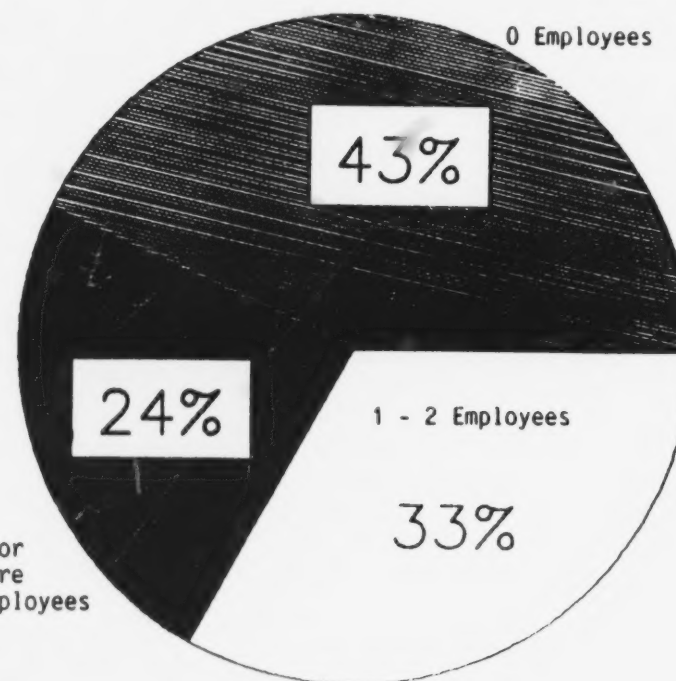
3 or More Employees

0 Employees



28

0 Employees



3 or
More
Employees

41

Purchased

Established

42

tutes from which they graduated. More than three-quarters are within 100 miles and less than one-quarter are more than 101 miles away, as is shown in Figure 4. A total of 978, or 84 percent, of the entrepreneurial graduates were located in Minnesota.

In some instances there appears to be a relationship of the vocational program to the location of the enterprise, relative to the technical institute. Instructive in this regard is that technical-manufacturing graduates tend to locate greater distances from their technical institutes, while agricultural and marketing-management-sales graduates tend to locate closer to their technical institutes than the entrepreneurial graduates as a whole. The tendency of the technical-manufacturing graduates to locate at greater distances from their technical institutes may be attributed to the limited availability of some technical programs. Of the 23 programs in this group that produced entrepreneurs, 12 specific programs are distributed among the campuses and are available at only one of them.

Other considerations also appear to affect the proximity of the enterprise relative to the technical institute. Twin Cities area entrepreneurs tend to locate their enterprises closer to their technical institutes than do Greater Minnesota entrepreneurs. Women entrepreneurs and owners of businesses employing three or more workers tend to locate closer to their technical institutes. This finding may be largely attributed to a greater percentage of women entrepreneurs graduating from technical institutes in the Twin Cities area and subsequently tending to employ more workers on the whole than do men entrepreneurs.

Women and Entrepreneurial Initiatives

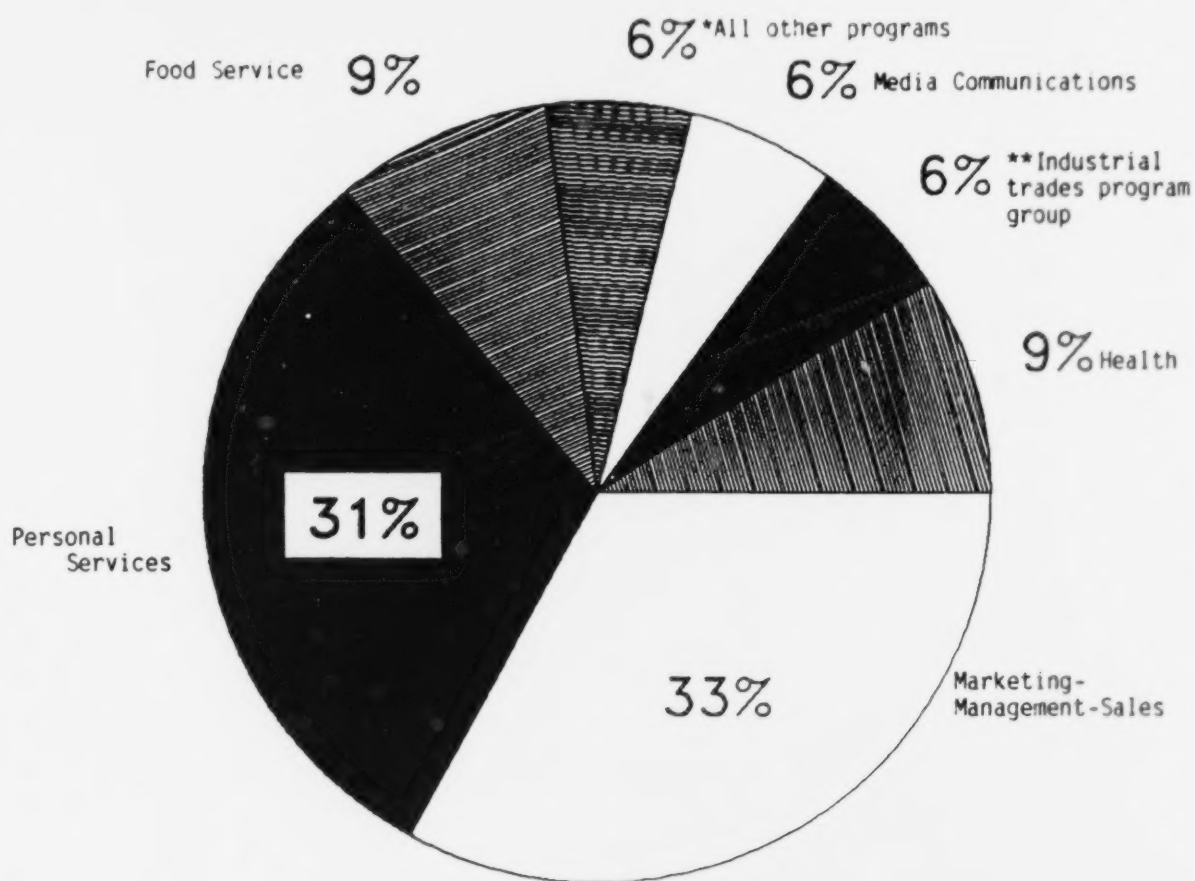
Women accounted for 162, or 14 percent, of the 1,169 entrepreneurial graduates. Two program groups in the technical institutes produced approximately two-thirds of the women entrepreneurs. The marketing-management-sales program group accounted for 33 percent of the women entrepreneurs, while the personal services program group accounted for another 31 percent, as shown in Figure 14. Of the women entrepreneurial graduates in the marketing-management-sales program group, 15 graduated in small business management, 14 in fashion merchandising management, 11 in interior design, seven in retail florist, and four in travel planner.

The distribution of women entrepreneurs among the programs in the personal services group was heavily concentrated in cosmetology with 35 graduates. Cosmetology was the program that appears to lend itself most readily to entrepreneurial initiatives for women. Two other programs in personal services--tailoring and apparel services--were also significant in producing 15 women entrepreneurial graduates. Altogether, 50 of the 55 entrepreneurial graduates in the personal services group were women. It is the only program group in which more women than men entrepreneurs were identified.

Other programs also contributed to producing women entrepreneurial graduates and included eight cookchefs, eight commercial artists, and five practical nurses. Ten of the women entrepreneurs graduated in the industrial trades. See Figure 15.

Over 90 percent of the women entrepreneurs operated retail or service-oriented businesses. Predominant were beauty salons, haircutting services, tailoring

Figure 14
Distribution of Women Entrepreneurial
Graduates Among Program Groups

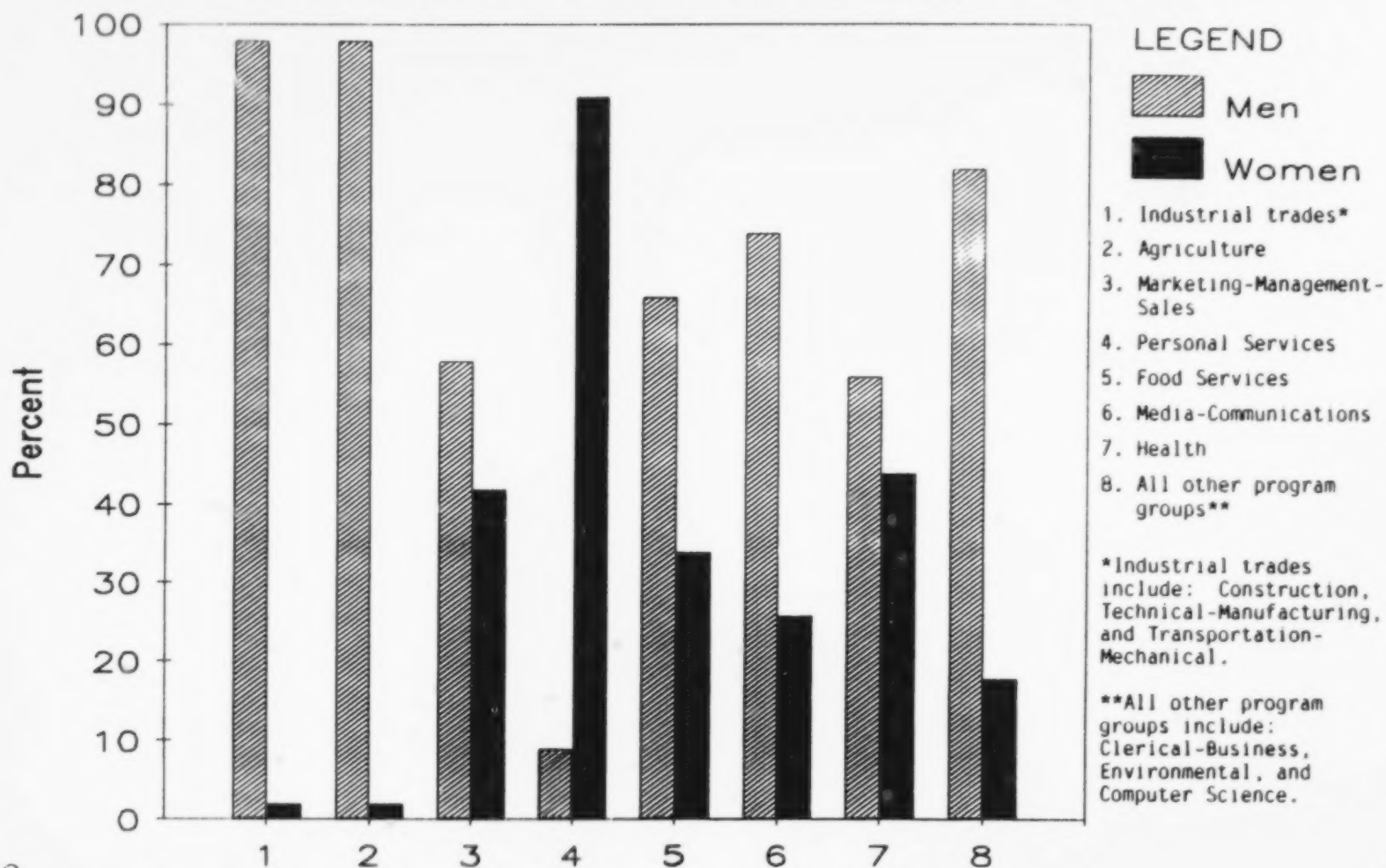


*All other program groups include: Agriculture, Clerical-Business, Computer Science, and Environmental.

**Industrial trades program groups include: Technical-Manufacturing, Transportation-Mechanical, and Construction.

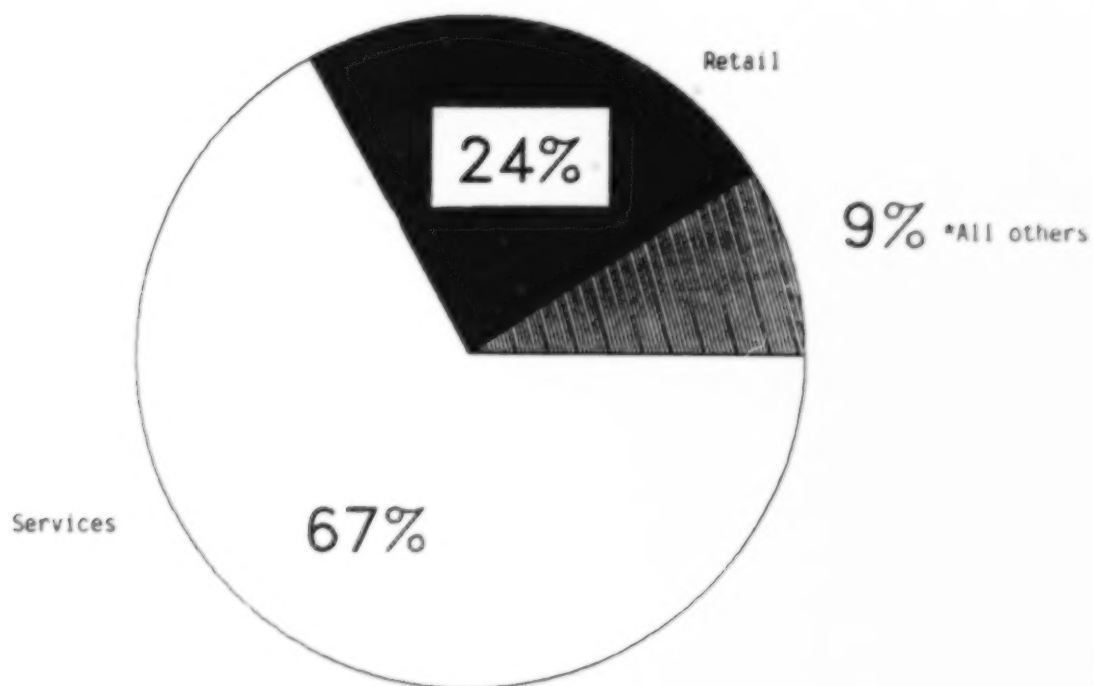
Graphics courtesy of the State Board of Vocational Technical Education

Figure 15
Distribution of Men and Women
Entrepreneurial Graduates Among Program Groups



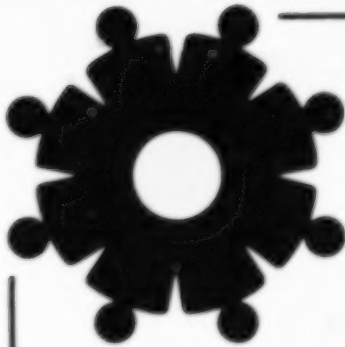
and apparel service shops, and fashion and interior design studios. Retail enterprises were primarily comprised of restaurants; bakeries; catering services; and apparel, clock, and gift stores. Although less frequent a source of entrepreneurial activity for women, opportunities were taken by some in farming and in providing services in child daycare, freight transportation, graphic art and advertising, travel, and home health care. One of the largest enterprises revealed in the data was established by a woman entrepreneurial graduate who employs approximately 70 people in her firm. Figure 16 shows the main types of businesses engaged in by women entrepreneurs.

Figure 16
Main Types of Businesses Engaged in
by Women Entrepreneurial Graduates



*All others include: Agriculture, Transportation-Communication, Manufacturing, and Construction.

Graphics courtesy of the State Board of Vocational Technical Education



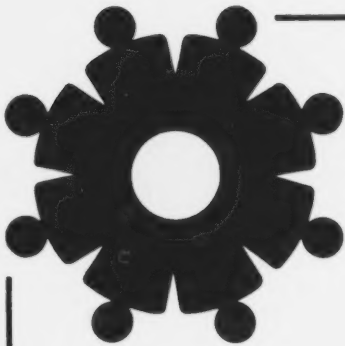
IV. Conclusions

Entrepreneurial graduates of Minnesota's technical institutes contribute directly to business formation and job creation in all major sectors of the economy except mining and are part of the economic development of every region of the state. These findings provide substantial evidence that vocational technical education has a significant relationship to entrepreneurial initiatives in Minnesota. Moreover, it is a relationship of potentially great importance for both the short and long term. The importance of the relationship should be addressed in public policy for education and economic development as well as in the marketing and delivery of educational services in the technical institutes. To view regular full-time students in the technical institutes solely as potential employees and never as potential employers simply does not reflect reality.

Both the business creator and the business manager are essential to economic development. The educational needs of both must be addressed. While most students who attend Minnesota's postsecondary institutions--whether a technical institute, a community college, a state university, the University of Minnesota, a private college, or a proprietary school--go to work for someone else, too little consideration may be given to the fact that potential entrepreneurs are among these students, especially those enrolled in

Minnesota's technical institutes and possessing the creative potential to establish new enterprises. The findings presented in this report suggest that the Board and the technical institutes should be most deliberate in addressing the creative potential among their students to establish new enterprises. Concurrently, the Board and the technical institutes are encouraged to continue their assertive targeting of managerially-talented students through established management education programs.

To serve students with the talent to create and manage enterprises does not detract from the important role of the technical institutes to offer initial and continuing education to enhance the competencies and productivity of Minnesota's work force. Indeed, the state's economic well-being requires that the technical institutes continue, as they have for 40 years, to provide students with solid educational opportunities and businesses with skilled workers. To address concurrently the entrepreneurial potential can only serve to strengthen further the technical institutes as economic development centers.



V. Epilogue

The Council, with the assistance of the Board and the technical institutes, has made significant progress on its initiative to develop a data base on entrepreneurial graduates of postsecondary vocational technical education in Minnesota. The concerted efforts of teachers to identify entrepreneurial graduates was central to the success achieved thus far. Moreover, the assistance of teachers, together with that of directors and others associated with the technical institutes, is of primary importance in helping the Council to continue to develop the data base.

Indeed, the Council looks to future accomplishments in expanding and refining the data base. Additional avenues for collecting new data would appear to be available as the Board and technical institutes augment their institutional research capabilities. Furthermore, information obtained by the technical institutes as they develop their alumni associations and foundations should be helpful to the Council's continued development of the data base.

The development of the data base is an experiment. It is, however, an experiment that reflects state and national priorities relative to economic development. It represents also the Council's obligations in a number of areas, including its responsibility to advise on (a) policies to strengthen vocational technical education and (b) private sector initiatives and par-

ticipation at the state and local levels to address emerging curricular and instructional needs.

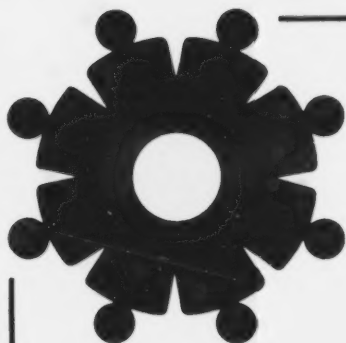
The information now available as a result of the efforts to develop the data base reveals important characteristics and suggests significant trends among entrepreneurial graduates. For example, some vocational programs appear more likely than others to produce entrepreneurs. The findings also suggest notable differences between the entrepreneurial experiences and contributions of men and women and between the graduates of technical institutes in Greater Minnesota and in the Twin Cities area.

Yet, more may need to be known, including the individual experiences and elements of educational and other community support that foster the entrepreneurial spirit among the diverse populations, many with special needs, who are served by Minnesota's technical institutes. At this point the data provide no opportunity to address these and other pertinent concerns, including the relationship of secondary vocational education experiences and of other educational, work, and life experiences to entrepreneurial activity.

- * Do these graduates typically undertake entrepreneurial initiatives immediately after graduation, or do they work for someone else for a period of time prior to becoming entrepreneurs?
- * Does gaining work experience through employment following graduation significantly enhance the potential for entrepreneurial success?
- * In addition to their vocational programs, what types of courses do entrepreneurial graduates believe would have been most helpful at the onset of their entrepreneurial initiatives?

- * What support services available through the technical institutes appear to be most essential to potential and emerging entrepreneurs?
- * Are there educational and support services that appear particularly significant to making entrepreneurial education effective for women, minorities, displaced workers, the handicapped, and the otherwise disadvantaged?
- * How most effectively can the technical institutes provide entrepreneurial education for the currently employed worker contemplating a career change at mid-life?
- * How do entrepreneurial graduates finance their ventures?

Information to address these and other questions would appear to be useful in developing the appropriate educational responses and the strategies to implement them. The objective of the data base, given adequate resources, is to address these questions. If the data base is successfully expanded, it may provide a source from which appropriate data samples may be drawn for further study in this important area.



APPENDIX

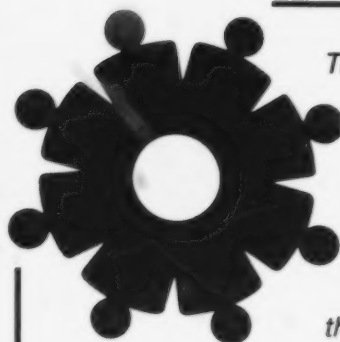
Figure 17
Entrepreneurial Graduates of Minnesota's Technical Institutes:
Summary by Technical Institute

Technical Institute	Total	Graduates		Number of ¹ Employees	Established Business	Purchased Business	Business Location	
		Women	Men				Within 50 Miles of Graduate's Technical Institute	Within Minnesota
Albert Lea	27	1	26	59	16	11	19	23
Alexandria	78	8	70	198	57	19	25	65
Anoka	15	4	11	27	12	3	12	15
Austin	10	6	4	68	6	4	9	10
Benidji	59	3	56	112	51	8	34	51
Brainerd	30	4	26	79	20	10	14	24
Dakota County	20	6	14	385	13	7	13	16
Detroit Lakes	13	3	10	18	11	2	8	12
Duluth	26	4	22	87	23	3	20	21
East Grand Forks	53	0	53	20	5	44	36	16
Eveleth	21	2	19	19	18	3	15	20
Faribault	5	0	5	66	5	0	4	5
HTC - North	40	12	28	119	28	12	38	40
HTC- South	19	1	18	39	18	1	17	17
Hibbing	18	1	17	43	15	3	10	18
Hutchinson	49	1	48	33	30	19	30	46
Mankato	52	12	40	409	28	24	41	42
Minneapolis	21	3	18	46	18	3	19	20
Moorhead	40	4	36	140	25	11	24	28
NE Metro (916)	57	23	34	160	45	12	45	52
Pine City	38	5	33	45	34	4	22	38
Red Wing	10	0	10	14	9	1	6	5
Rochester	19	2	17	14	15	4	17	17
St. Cloud	9	0	9	41	6	3	8	9
St. Paul	76	9	67	416	45	31	54	72
SW - Canby	41	2	39	47	25	16	14	34
SW - Granite	7	1	6	88	5	2	6	7
SW - Jackson	47	0	47	35	31	9	20	34
SW - Pipestone	57	16	41	620	37	20	22	39
Staples	24	0	24	6	15	9	17	22
Thief River Falls	22	5	17	17	10	12	17	21
Wadena	43	16	27	81	32	10	26	41
Willmar	11	3	8	90	7	4	5	11
Winona	112	5	107	250	15	97	81	87
Totals	1,169	162	1,007	3,891	730	421	748	978

¹The employee count does not include the entrepreneurial graduate as the employer.

Figure 18
Entrepreneurial Graduates of Minnesota's Technical Institutes:
Summary by Program Group

Technical Institute	Agriculture	Clerical, Computer Business	Science	Construction	Environmental Service	Food Health, Marketing, Hospital Management	Media, Communications	Personal Services	Technical, Manufacturing	Transportation Mechanical
Albert Lea				7		3			10	7
Alexandria	6								7	49
Anoka						11	1	14	3	
Austin										2
Benidji				15		3	4	1	7	37
Brainerd		1			2		3		10	14
Dakota County		1					14		1	4
Detroit Lakes							6			2
Duluth			2	11	3	4		5	1	4
E. Grand Forks	44			6					2	1
Eveleth				10				1	4	4
Faribault						2			3	2
HTC - North				2	1	9	1	9	4	5
HTC - South			1	12			1	1	1	3
Hibbing			3			1	4			10
Hutchinson	27								8	14
Mankato	9					13	24		2	4
Minneapolis						1	2	3	1	6
Moorhead			3	4		1	7		21	4
NE Metro (916)				1	5		11	18	1	3
Pine City	1	5		3			7		20	2
Red Wing		1							6	3
Rochester				1	2		1		6	9
St. Cloud				6			2	1		
St. Paul		2		21		5	1	2	4	7
SW - Canby		3		11						33
SW - Granite Falls										27
SW - Jackson				7					1	3
SW - Pipestone	6			23		3	15		9	16
Staples								1		1
Thief River Falls	5	1							5	5
Wadena		3		18				3	17	2
Willmar	1					1			3	2
Winona	103						5		3	
Totals	202	17	9	158	13	41	32	125	38	55
										199
										280



The logo of the State Council on Vocational Technical Education is an abstract representation of the citizen-councilors assembled at a round table. Designed by a commercial art student at Alexandria Technical Institute, the design was selected in 1982 from 69 entries submitted by vocational students in Minnesota's high schools, secondary cooperative centers, and technical institutes. The Council made its selection on the basis of a recommendation by a panel of representatives from the graphic arts, public relations, and media industries in Minnesota.

Purpose of the Council

The State Council on Vocational Technical Education is designed to further public-private collaboration for the advancement of quality vocational programs responsive to labor market needs. Established in 1969 and designated as a state agency in 1985, the Council is composed of 13 members appointed by the Governor. Seven members represent the private sector interests of agriculture, business, industry, and labor. Six of the members represent vocational technical education institutions, career guidance and counseling organizations, special education, and targeted populations.

The Council advises the Governor, the State Board of Vocational Technical Education, the State Board of Education, the Governor's Job Training Council, the business community, the general public, and the U.S. Secretaries of Education and Labor. The Council advises on development of the annual state vocational plan; provides consultation on the establishment of program evaluation criteria and state technical committees; analyzes the spending distribution and the availability of vocational programs, services, and activities; reports on the extent to which equity to quality programs is provided targeted populations; recommends procedures to enhance public participation in vocational technical education; recommends improvements that emphasize business and labor concerns; evaluates the delivery systems assisted under the Carl D. Perkins Vocational Education Act and the Job Training Partnership Act (JTPA); and advises on policies that the state should pursue to strengthen vocational technical education, as well as initiatives that the private sector could undertake to enhance program modernization.

To enhance effectiveness in gathering information, the Council holds at least one town meeting each year outside the Twin Cities metropolitan area at which the public is encouraged to express its concern about vocational technical education in Minnesota. To enhance its effectiveness in providing information, the Council publishes a quarterly newsletter, an annual directory, and a biennial report. These publications as well as project and activity reports are available to the public.

The Council meets on the first Tuesday following the second Monday of each even numbered month except during August. Information on the date, time, and location of meetings and other activities is available by calling the Council Offices at 612/296-4202.